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Safety Data Sheet

1. Chemical product and company identification

Product name : Copper(Ⅰ) oxide

Company information

Name of manufacturer	:	KANTO CHEMICAL CO., INC.
Address	:	2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section	:	Business Administration Department, Reagent Division
Telephone number	:	+81-3-6214-1090
Facsimile number	:	+81-3-3241-1047
Mail address	:	BC32@kanto.co.jp
Reference No	:	07527
Recommended use	:	For research use only
Restrictions on use	:	Seek expert judgment when using the product for applications other than those recommended.

2. Hazards identification

GHS classification

Health hazards	Acute toxicity (oral)	Category 4
	Acute toxicity (inhalation:dust/mist)	Category 4
	Serious eye damage/eye irritation	Category 2A
	Specific target organ toxicity (single exposure)	Category 1 (systemic toxicity)
	Specific target organ toxicity (single exposure)	Category 3 (respiratory tract irritation.)
Environmental hazards	Aquatic acute	Category 1
	Aquatic chronic	Category 1

Hazard pictograms

Signal word : Danger

Hazard statements :
Harmful if swallowed or if inhaled
Causes serious eye irritation
May cause respiratory irritation
Causes damage to organs (systemic toxicity)
Very toxic to aquatic life
Very toxic to aquatic life with long lasting effects

Precautionary statements

Prevention :
Do not breathe dust.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Avoid release to the environment.

		Wear protective gloves/protective clothing/eye protection/face protection.
Response	:	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER or doctor. Call a POISON CENTER or doctor if you feel unwell. Rinse mouth. If eye irritation persists: Get medical advice/attention. Collect spillage.
Storage	:	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	:	Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Chemical name	Concentration (%)	Formula	TSCA	EC-No.	CAS RN
Copper(Ⅰ) oxide	≥ 92	Cu2O	Listed	215-270-7	1317-39-1

4. First aid measures

First aid measures

First-aid measures after inhalation	:	Remove the victim to fresh air, and make him blow his nose and gargle. If necessary, get medical treatment.
First-aid measures after skin contact	:	Wash the affected areas under running water.
First-aid measures after eye contact	:	Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.
First-aid measures after ingestion	:	Give the victim water or salt water and make him vomit. Get medical attention.
Personal Protection in First Aid and Measures	:	Rescuers should wear proper protective equipment like rubber gloves, goggles.

5. Fire fighting measures

Suitable extinguishing media	:	This product is noncombustible.
Unsuitable extinguishing media	:	None
Firefighting instructions	:	Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.
Personal protection (Emergency response)	:	Firefighters should wear protective equipment.

6. Accidental release measures

Personal Precautions, Protective Equipment and Emergency Procedures

General measures : Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind.

Environmental precautions

Environmental precautions : Attention should be given to avoid damage to the environment by flowing of spillage to rivers.

Methods and Equipment for Containment and Cleaning up

For containment : Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water.

7. Handling and storage

Handling

Technical measures : Wear appropriate protective equipment to avoid contact with skin or inhalation of dust.

Precautions for safe handling : Avoid formation of dust and aerosols.

Storage

Storage conditions : Store in a dark, cool place and tightly closed.

Material used in packaging/containers : Glass, polyethylene, polypropylene.

8. Exposure controls / Personal protection equipment

ACGIH TWA	Not established

Appropriate engineering controls : Install a local ventilation system in case of dusty condition.

Protective equipment

Respiratory protection : If necessary, wear dust mask

Hand protection : Impervious protective gloves

Eye protection : Safety goggles

Skin and body protection : Protective clothing, protective boots

9. Physical and chemical properties

Physical state : Solid

Color : Reddish brown

Odor : Odorless

pH : No data available

Melting point : 1232 ° C

Freezing point : No data available

Boiling point : 1800 ° C

Flash point : No data available

Auto-ignition temperature : No data available

Decomposition temperature : No data available

Flammability : Non flammable.

Vapor pressure	:	No data available
Relative density	:	6.04 (25/4℃)
Density	:	No data available
Relative gas density	:	No data available
Solubility	:	Water: Insoluble. Soluble in hydrochloric acid.
Partition coefficient n-octanol/water (log Pow)	:	No data available
Explosive limits (vol %)	:	No data available
Viscosity, kinematic	:	No data available
Particle characteristics	:	No data available

10. Stability and reactivity

Reactivity	:	It absorbs nitrogen dioxide at room temperature, but releases it when heated to 65-70 ℃.
Chemical stability	:	Stable under normal conditions. Oxidized gradually in moist air and is converted to copper (Ⅱ) oxide.
Possibility of hazardous reactions	:	When a mixture with aluminum powder is ignited, it emits high heat and is reduced.
Conditions to avoid	:	Light, heat, moisture.
Incompatible materials	:	Oxidizing substances.
Hazardous decomposition products	:	fume.

11. Toxicological information

Acute toxicity (oral)	:	Harmful if swallowed rat LD50=470mg/kg
Acute toxicity (dermal)	:	No classification rat LD50>2000mg/kg
Acute toxicity (inhalation)	:	No classification (gas) Classification not possible (vapor) Harmful if inhaled (dust, mist) rat LC50=ca. 5mg/L/4h
Skin corrosion/irritation	:	No classification Based on the rabbit test (OECD TG 404 GLP), which concluded that the substance was not irritating, it was classified into "No classification".
Serious eye damage/irritation	:	Causes serious eye irritation In rabbit tests (OECD TG 405 GLP), the substance was found to be irritating (EC classification) or slightly irritating. In addition, there is the epidemiological information that transient irritation of the eyes had followed exposure to a fine dust of oxidation products of copper produced in an electric arc. Based on these results, the substance was classified into category 2A.
Respiratory sensitization	:	Classification not possible
Skin sensitization	:	Classification not possible Maximization tests using guinea pigs (OECD TG 406) concluded that the substance was not sensitizing. However, there are no other datasets that justify the placement of the substance into the "No classification" category. Thus, the substance was classified into "Classification not possible" due to insufficient data available.
Germ cell mutagenicity	:	Classification not possible
Carcinogenicity	:	Classification not possible

Reproductive toxicity	:	Classification not possible According to the epidemiological information, sexual impotence was observed in workers who engaged in copper refining electrically. In addition, there are reports that a piece of medical equipment made of copper that is used in the uterus possibly contributes to the production of undifferenciated blastocytes or the inhibition of implantation. However, it is not described whether the copper used is of metallic copper or copper oxide. Since these data alone do not provide sufficient information for the evaluation of copper (I) oxide toxicity, classification is not possible.
STOT-single exposure	:	Causes damage to organs (systemic toxicity) May cause respiratory irritation The acute inhalation of copper fume during refining or welding processes may cause typical metal fume fever with upper respiratory irritation, chills, and aching muscles; and a number of workers who developed copper fume fever had serum copper levels which averaged 1.26 mg/L. In addition, workers who cut brass pipes with electric torch developed metal fume fever, with its symptoms including fever, dyspnea, chills, headache, and nausea. Inhalation of copper fume results in irritation of the upper respiratory tract and an influenza-like illness termed metal fume fever. Signs and symptoms of metal fume fever include fever, chills, dry throat cough, and lassitude. There is usually leucocytosis; recovery is usually rapid, and there are no sequelae. Although these pieces of epidemiological information do not specifically state that copper(I) oxide is the cause of these symptoms, copper fumes presumably contain copper(I) oxide. Therefore, the substance was classified into category 1 (systemic toxicity) and category 3 (respiratory tract irritation).
STOT-repeated exposure	:	Classification not possible In 14-week inhalation tests using rats, a change in serum components by exposure of 0.004mg/L/6H or number of erythrocytes was observed. Although these effects on the blood are suspected within the range of category 1 guidance values, detailed information is not provided.
Aspiration hazard	:	Classification not possible

12. Ecological information

Ecotoxicity

Aquatic acute	:	Very toxic to aquatic life Daphnia magna EC50=0.026mg/L/48h
Aquatic chronic	:	Very toxic to aquatic life with long lasting effects

Persistence and degradability

No additional information available

Bioaccumulative potential

No additional information available

Mobility in soil

No additional information available

Hazardous to the ozone layer

Ozone	:	Classification not possible

13. Disposal considerations

Ecological waste information : Bury in a landfill site approved for the disposal of chemical and hazardous wastes. Or entrust approved waste disposal companies with the disposal.

14. Transport information

International Regulations

Transport by sea(IMDG)

UN-No. (IMDG)	:	3077
Proper Shipping Name (IMDG)	:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	9

Air transport(IATA)

UN-No. (IATA)	:	3077
Proper Shipping Name (IATA)	:	Environmentally hazardous substance, solid, n.o.s.
Packing group (IATA)	:	III
Transport hazard class(es) (IATA)	:	9
Marine pollutant	:	Applicable
MFAG-No	:	171

15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

16. Other information

Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253.